

REMARKS

Claims 1-15 are pending in this application. Claims 1, 4, and 11 are independent. Claims 1 and 2 are amended. Claims 4-15 are new claims.

SPECIFICATION

The title is objected to for not being descriptive. Applicants have amended the title to recite “System for Automatically Focusing on a Desired Object and Method Thereof”, thereby providing a clearer indication of the subject matter to which the claims are directed.

REJECTIONS UNDER 35 U.S.C. §102

Claims 1 and 3 stand rejected under 35 U.S.C. §102(b) as anticipated by Suda et al. (U.S. Patent No. 6,088,060; hereinafter Suda). Applicants respectfully traverse the rejection as detailed below.

Suda describes an automatic focusing device for use in a video camera apparatus. As shown in FIGS. 1(a) and 1(b) of Suda, an image is captured by a photo taking lens **1** and converted to a luminance signal by an image sensor **2** coupled to a pre-amplifier **3**. This signal is then fed into a series of gate circuits **11-20** (A-E). Alternatively, FIG. 5 illustrates passing the luminance signal through a bandpass filter **5** before feeding the luminance signal into the series of gate circuits. As shown in FIG. 3 of Suda, the “gates” of the gate circuits refer to a series of designated areas within a larger image field.

The automatic focusing device according to Suda compares the mean value of the luminance signal inside each of these gate areas to the mean value of the luminance signal in the remainder of the larger image field (i.e., the larger image field minus the selected gate area). The gate that produces the largest difference in luminance signal compared with the remainder of the

larger field corresponds to the location on the image sensing plane of the main object [col. 6, lines 3-17], and that gate is selected by the Selector 48 of FIG. 1. The selector 48 tells the Gate Pulse Generating Circuit 54 which gate corresponds to the location of the main image, and also to relocate the gate areas on the image plane such that gate A is centered on the main image and the remaining gates are set up to cover future possible movements of the main image within the image plane.

In this way, the automatic focusing device according to Suda takes an image on an image plane, divides it into a series of predetermined, overlapping image areas (gate areas), compares the value of a certain information signal (luminance signal) inside each area to the value of that signal outside the respective area, and adjusts the areas to coincide with the main object. From this, the automatic focusing device of Suda may determine the location of the main object and track its motion.

In contrast, claim 1 has been amended to recite an autofocus system including a major object position determination device which determines a position on the viewing area of the major object focused by an auto focus device by obtaining from a filter device signals of the high-frequency components corresponding to “a first image picked up by the camera and a second image picked up by the camera after passage of a predetermined time from picking up of the first image”. The Examiner alleges that Suda discloses obtaining video signals at different times and compares the signals (or components thereof) [Office Action, “Regarding claim 2”], but this assertion is unsupported by the cited paragraphs. As described above, Suda analyzes a single image repeatedly, but does not directly compare two images separated by a given time interval. Rather, Suda detects changes in the main object by analyzing a single image using the circuitry of FIGS. 1A, 1B, and/or 5, and moving the gates from their previous location to the new location determined to be that of the main object [col. 7, lines 41-48]. This process repeats itself

with the next image to track changes in the main object, but each image is analyzed independently from the previous one.

Thus, the features of claim 1 are neither sufficiently disclosed nor suggested in the cited art. Accordingly, for at least such reasons, independent claim 1 is allowable over Suda. With regard to the dependent claims 2-3, they are also allowable for at least the reasons previously submitted with regards to their corresponding independent claim. Therefore, Applicants respectfully request that the rejection of claims 1-3 under 35 U.S.C. §102 be withdrawn.

NEW CLAIMS

Newly added independent claim 4 recites an autofocus system including a major object position determination device configured to determine the position of the major object “based on first and second images, the second image being taken at a later time than the first image”. As discussed above, the cited art fails to disclose, teach, or suggest this feature of claim 4, and thus, Applicants believe that independent claim 4 is also allowable. Furthermore, Applicants believe that claims 5-10, which depend from claim 4, are allowable for at least their dependence on an allowable base claim.

Similarly, newly added independent claim 11 recites an autofocusing method including determining the position of a major object “based on first and second images, the second image being taken at a later time than the first image”. As discussed above, the cited art fails to disclose, teach, or suggest this feature of claim 11, and thus, Applicants believe that independent claim 11 is also allowable. Furthermore, Applicants believe that claims 12-15, which depend from claim 11, are allowable for at least their dependence on an allowable base claim.

CONCLUSION

Accordingly, in view of the above amendments and remarks, reconsideration of the objections and rejections and allowance of each of claims 1-15 in connection with the present application is earnestly solicited.

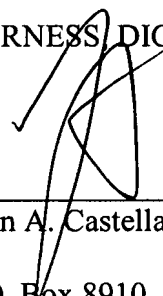
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John A. Castellano at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY, & PIERCE, P.L.C.

By



John A. Castellano, Reg. No. 35,094

P.O. Box 8910
Reston, Virginia 20195
(703) 668-8000

JAC/SAD:bp